

Addendum to PCB Contaminated Building Material Remedial Action Plan

**Building #2 Veterans Affairs Hospital
200 Springs Road in Bedford, Massachusetts**

EnviroVantage
Epping, NH

May 16, 2012



Fuss & O'Neill EnviroScience, LLC
50 Redfield Street, Suite 100
Boston, MA 02122



May 16, 2012

Ms. Kimberly Tisa
PCB Coordinator
U.S. Environmental Protection Agency
One Congress Street, Suite 1100 (CPT)
Boston, MA 02114-2023

**RE: Addendum to PCB Containing Building Materials Remedial Action Plan
Building #2 Veterans Affairs Hospital in Bedford, MA**
Fuss & O'Neill Project No. 20111362.A1E

Dear Ms. Tisa:

We are submitting this work plan addendum in accordance with the requirements for a Risk-Based Disposal Plan for PCB Caulking Removal associated with the limited masonry joint tuck pointing project at Building #2 located at the Veterans Affairs Hospital campus in Bedford, Massachusetts. The Plan has been prepared and submitted in accordance with requirements of 40 CFR Part 761.61(a)(3) and is being submitted for review and approval in accordance with 40 CFR Part 761.61 (c).

TRC Environmental Corporation (TRC) of Windsor, CT initially contacted the U.S. Environmental Protection Agency (EPA) in reference to the proposed tuck pointing and waterproofing project, and submitted a Remedial Action Plan dated April 2010. TRC's Remedial Action Plan referenced PCB analytical data for source materials as recorded in their August 2009 Report for Pre-Renovation Investigation. EPA responded in writing to TRC with a correspondence letter dated November 5, 2010 stating that the TRC submittal did not fully comply with notification requirements under 40 CFR Part 761.61(a)(3) and 761.61(c); deficiencies of submittal were noted. A response letter to EPA was prepared and submitted by TRC dated February 1, 2011.

Fuss & O'Neill EnviroScience, LLC (EnviroScience) was retained by the contracted remediation contractor to conduct supplemental testing outlined within TRC letter to EPA dated February 1, 2011 and prepare this addendum to the original work plan, submitted by TRC. EnviroScience performed the supplemental testing of bulk products and substrate building materials from January 19, 2012 to March 6, 2012.

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In the response letter to EPA from TRC dated February 1, 2011, several items were noted by EPA to require additional information that the Owner is to provide. We have prepared an itemized listing of these items for the Owner to provide response to EPA. Many of these items are outside of the proposed contract work. We have included a PCB management plan prepared by the Owner to address items outside of the proposed limits of this project.

In summary, the attached addendum supports that the work proposed currently will not likely result in work associated with PCB Remediation Waste based on the supplemental testing performed. EnviroScience has conducted the TRC recommended testing as well as further site characterization and determined that only limited locations of regulated PCB containing caulking materials are present meeting the definition of a PCB Bulk Product Waste ≥ 50 ppm. For those products containing PCBs < 50 ppm adjacent substrates have been tested and no evidence that a prior use of caulking > 50 ppm is evident thus materials meet the definition of "Excluded PCB Products". Additionally, it has been determined by the adjacent substrate testing that concentrations of PCBs in these surfaces do not exceed proposed clean-up standards in the areas of proposed work and therefore the potential for PCB Remediation Wastes is unlikely. We are proposing based on the testing and planned renovation work that the removal of materials containing regulated concentrations of PCBs be performed as Performance Based Disposal in accordance with 40 CFR 761.62 (a) for disposal of PCB bulk product waste and that clean-up and disposal of PCB remediation waste is not required at this time associated with the renovation project. This is subject to post removal verification of substrates upon completion of PCB Bulk Product Waste removal.

The removal of caulking materials will be performed in accordance with the proposed methods specified in the original Remedial Action Plan prepared by TRC. Verification sampling will be performed in accordance with the sampling protocols outlined in the TRC submitted plan prior to installation of new caulking or mortar. The frequency of this testing has been modified to limit the number of locations based on the additional testing already performed. In some instances whole sections of masonry units may be removed and replaced. The removal of a portion of these sections will be conducted by the remediation contractor and disposed of as TSCA regulated waste > 50 ppm if it is determined that substrates contain PCBs > 1 ppm. The mason will replace the removed masonry.

Based on the representative samples of substrates to characterize potential PCB remediation waste, concentrations do not exceed proposed clean-up standards of ≤ 1 ppm for high occupancy areas or ≤ 25 ppm for low occupancy areas. Therefore no further treatment of the adjacent substrates is proposed, subject to verification sampling required within the limits of work. We are proposing that the use of an encapsulant in the TRC plan will only be provided if verification testing of substrates



after removal of PCB Bulk Product determines that proposed clean-up standards are exceeded. Thank you for your attention to this matter and if you have any questions with regard to the plan please contact the undersigned, Robert May at (800) 286-2469 x 4701.

Sincerely,

A handwritten signature in black ink, appearing to read 'Robert L. May Jr.'.

Robert L. May Jr.
Vice President

A handwritten signature in black ink, appearing to read 'Kevin W. Miller'.

Kevin W. Miller, Ph.D
President

RLM/ftc

Enclosure: Addendum



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- Appendix B Pre-Renovation Investigation Report prepared by TRC – August 2009
- Appendix C Correspondence
- Appendix D Laboratory Analysis and Chain of Custody – January 19, 2012
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1 Introduction

This addendum to PCB Contaminated Building Materials Remedial Action Plan has been prepared by Fuss & O'Neill EnviroScience, LLC (EnviroScience) for proposed removal of PCB-containing exterior caulking associated with limited masonry joints at Building #2 located at the Veterans Affairs Hospital campus in Bedford, Massachusetts. The addendum has been prepared to address outstanding items for the previously prepared plan to the extent part of the proposed project work for compliance with the U.S. Environmental Protection Agency (EPA) requirements for submission of a Risk Based Disposal Plan in accordance with 40 CFR Part 761.61(c).

TRC Environmental Corporation (TRC) of Windsor, CT initially contacted EPA in reference to the proposed tuck pointing and waterproofing project, and submitted a Remedial Action Plan (RAP) dated April 2010. A copy of the original plan is included in *Appendix A*. TRC's Remedial Action Plan referenced PCB analytical data for source materials as recorded in their August 2009 Report for Pre-Renovation Investigation included in *Appendix B*. EPA responded in writing to TRC with a correspondence letter dated November 5, 2010 stating that the (TRC) submittal did not fully comply with notification requirements under 40 CFR Part 761.61(a)(3) and 761.61(c); deficiencies of submittal were noted. A response letter to EPA was prepared and submitted by TRC dated February 1, 2011. The correspondence letters referenced above are included in *Appendix C*.

EnviroScience was retained by the contracted remediation contractor, EnviroVantage of Epping, NH, to conduct supplemental testing outlined within TRC letter to EPA dated February 1, 2011 and prepare this addendum to the original work plan, also submitted by TRC. EnviroScience performed the supplemental testing of bulk products and substrate building materials from January 19, 2012 to March 6, 2012.

Testing performed for EnviroVantage has determined exterior caulking/sealants to contain polychlorinated biphenyls (PCBs) above regulated concentrations at limited locations within area of proposed renovation work. Additionally, testing of substrates adjacent to regulated caulking do not presently exceed proposed clean-up standards and no further action is proposed for adjacent substrates subject to confirmation with post verification testing. The proposed work is to be performed as Performance Based Disposal in accordance with 40 CFR 761.62 (a) for PCB Bulk Product Waste. The submission of this plan addendum is to complete the requirements of the original submission and correspondence.

A Site Locus Map identifying the building location is included in Figure 1-1.

1.1 Background

Building #2 is located within the Veterans Affairs Hospital (VAH) campus located at 200 Springs Road in Bedford, Massachusetts. The multi-story hospital building encompasses approximately 21,000 gross square feet of exterior area, and was constructed in 1927. The building has a brick façade with ornamental concrete/brick parapet structures at various roof areas; the front (main) entrance is defined by a large concrete/brick stairway.

The Bedford, Massachusetts VAH campus is a multi-building medical/hospital complex that provides long-term care and comprehensive health services. Building #2 is one of the main

hospital buildings within the campus, and is occupied 24/7 by medical staff, patients, and support staff.

The intent of the Owner's representative, U.S. Army Corps of Engineers, is to remove exterior caulking and sealants (prior to reapplication) as part of the proposed tuck pointing and waterproofing project. The project is limited and intent of this addendum is to facilitate work within proposed contract limits only as identified on attached drawings in Figure 1-2. Initial sampling for asbestos, lead-based paint, and PCBs was performed by TRC in June 2009 and April 2010. TRC analytical results confirm presence of asbestos in exterior caulking and sealants. Therefore, all exterior caulking/sealants shall be removed appropriately as asbestos containing materials (ACM) by EnviroVantage who is a licensed Asbestos Abatement Contractor in Massachusetts.

Workers shall also follow OSHA recommendations relating to worker protection during caulking removal. Furthermore, regulated (>50 ppm) PCB Bulk Product Materials have been identified at limited locations as determined by supplemental sampling performed by EnviroScience. It should be noted that materials that would be impacted by the proposed project only were tested. Several of the materials tested originally by TRC will not be impacted by the project work and are not included in this plan addendum.



Building #2



Decorative Gable Pitched-Roof
at Center Parapet above main entrance

1.2 Project Objectives

This RAP addendum is for the removal of polychlorinated biphenyl (PCB) containing materials with equal to or greater than (\geq) 50 parts per million (ppm) PCB as Bulk Product Waste. These materials include exterior caulking between front-entrance door step and top stair landing sidewalk, and exterior caulking/sealant associated with limestone capstones at gable roof-pitch at center parapet over main entrance. The plan also includes methods for limited removal of adjacent surface materials and encapsulation of adjacent materials to remain with an epoxy or urethane coating if required based on scope of work and post verification sampling. Testing has been limited to exterior areas scheduled to be impacted by the aforementioned tuck pointing and waterproofing project only within limits of the project.

The objective of the project is to remove PCB containing caulking materials as PCB Bulk Product Waste containing PCB ≥ 50 ppm. Adjacent porous surfaces have been tested at limited locations to determine concentrations of PCBs for comparison to the remedial goals of ≤ 1 ppm for high occupancy areas and ≤ 25 ppm for low occupancy areas. The building is considered a high occupancy building, however the work is limited to the building exterior only. Caulking containing PCB ≥ 50 ppm have been limited to the following:

1. Light Grey Caulking (BC1) confirmed only at Center Parapet above Main Entrance – low occupancy area at roof due to limited access. Note roof access is extremely limited at this location. The caulking is present at edges of ornate roof structure which is approximately 2-3 feet below walk surface of roof.
2. Clear/Black Caulking has been newly identified at joint between door threshold and concrete stair landing. This location is in a high occupancy area since it is accessible. This caulk joint will be removed as part of the proposed project work.

1.3 Plan Organization

This RAP has been organized into the following sections:

Section 2: Site Characterization

The site characterization section provides a summary of the sampling performed to delineate the nature and extent of PCB as required in accordance with 40 CFR Part 761.61 (a)(3) (A-C). The section includes the nature of the contamination including kinds of materials; a summary of the procedures used to sample PCB Bulk Products and adjacent surfaces.

Section 3: Remediation Plan

The remediation plan includes a discussion of how the remedial objectives identified in Section 1.2 shall be met; this includes description of the remediation approach, appropriate cleanup levels to be met, and the verification sampling approach to be utilized. This section references figures depicting the areas of proposed remediation work and provides methods and locations for post-remediation verification sampling. The remediation plan is submitted in accordance with 40 CFR Part 761.61(c) and includes required information required under 40 CFR Part 761.61 (a)(3)(D).

Section 4: Schedule and Certification

The proposed schedule for implementation and reporting schedule is provided. This section includes the written certification signed by property Owner, United States Department of Veterans Affairs, and other responsible parties responsible for the remediation, cleanup and disposal in accordance with 40 CFR Part 761.61 (a)(3)(E).

2 Site Characterization

This section provides a summary of the sampling performed to delineate the nature and extent of PCBs as required in accordance with 40 CFR Part 761.61 (a)(3) (A-C). The section includes the nature of the contamination including kinds of materials; a summary of the procedures used

to sample contaminated and adjacent surfaces; and the location and extent of the identified contaminated areas.

The following sections describe the selection of sample locations, sample collection methods, and the results of the characterization data. Sampling was performed during several different time periods. The initial site characterization of source materials, including exterior caulking and sealants, was performed by TRC Companies, Inc. of Windsor, CT during the Pre-Renovation Investigation conducted in 2009. Confirmatory testing of source materials, and testing of adjacent surfaces to facilitate development of this RAP plan addendum, was performed by Fuss & O'Neill EnviroScience, LLC of Boston, MA. Figures depicting the locations of samples collected by EnviroScience are included in Figure 2-1.

2.1 Sample Collection and Analysis Summary

Limited testing of source materials was conducted by TRC as detailed below. Samples were collected upon direction received from EPA. Samples were also collected for asbestos during a survey of the building being performed prior to renovation in accordance with EPA requirements. The sampling was performed on multiple occasions including the following:

1. June 2009 and April 2010 – TRC Environmental Corporation – TRC included identified bulk products containing PCBs in their Plan dated April 2010. Summary included results of a single sample of 12 materials. Refer to plan included in *Appendix A*.
2. January 19, 2012 – Fuss & O'Neill EnviroScience, LLC - 8 samples of bulk product (source) materials, and 17 samples of substrate materials. Analysis performed by Con-Test Analytical Laboratory in East Longmeadow, MA. Refer to laboratory results included in *Appendix D*.
3. February 14, 2012 – Fuss & O'Neill EnviroScience, LLC - 11 samples of bulk product (source) materials. Analysis performed by Con-Test Analytical Laboratory in East Longmeadow, MA. Refer to laboratory results included in *Appendix E*.
4. February 22, 2012 – Fuss & O'Neill EnviroScience, LLC - 5 samples of substrate materials. Analysis performed by Con-Test Analytical Laboratory in East Longmeadow, MA. Refer to laboratory results included in *Appendix F*.
5. February 27, 2012 – Fuss & O'Neill EnviroScience, LLC - 17 samples of bulk product (source) materials. Analysis performed by Con-Test Analytical Laboratory in East Longmeadow, MA. Refer to laboratory results included in *Appendix G*.
6. March 6, 2012 – Fuss & O'Neill EnviroScience, LLC - 2 samples of bulk product (source) materials, and 4 samples of substrate materials. Analysis performed by Con-

Test Analytical Laboratory in East Longmeadow, MA. Refer to laboratory results included in *Appendix H*.

2.2 Previous Environmental Investigations

Prior testing performed in August of 2009 by TRC of Windsor, CT identified PCBs at varying concentrations based on a single grab sample. Specific locations of collected samples is vague and additional sampling to confirm initial results as well as conclusions of potentially “Excluded PCB Products” and proposed remediation clean-up standards was required. TRC identified twelve materials of which only the six noted in the following table will be impacted by proposed work.

TABLE 2-1
Previous Sampling and Analysis Results Table for
PCB Bulk Samples to be impacted by proposed work only

SAMPLED LOCATION	MATERIAL TYPE	SAMPLE NO.	PCB CONTENT (mg/kg or ppm)
Potential Excluded PCB Products <50 ppm			
A side central on bird deterrents above stairway	FL7 – black flashing tar under bird deterrents	05*	36 (Aroclor 1254)
C side near addition	BC4-grey building caulk on vertical joint	13	1.8 (Aroclor 1254)
Roof – B side of central structure where roof hits wall	BC10-White caulk on metal roof flashing	14*	2.7 (Aroclor 1254)
Front stair entry concrete baluster	BC12-grey caulk around concrete stair baluster	16**	1.9 (Aroclor 1254)
PCB Bulk Product Waste			
All windows	WC1-light brown window caulk	08*	440 (Aroclor 1254)
All sides on concrete stringcourses, on concrete window décor above some windows: on parapet roof caps?decor, on misc. concrete décor.structures throughout	BC1-light grey building caulk	11*	51,000 (Aroclor 1254)
Front stair entry concrete seams	BC3-clear sticky building caulk	15	830 (Aroclor 1254)

* Materials also contain asbestos

** Not sampled for asbestos

1. Information obtained from PCB Contaminated Building Materials Remedial Action Plan, Veterans Affairs Hospital, Building 2, Facade Tuck-pointing Project”, dated April 2010

2.3 Sampling Objectives

The objective of the sampling activities performed by EnviroScience were to evaluate the potential presence of PCBs in building materials at the site, in order to determine acceptable and practical disposal options for these materials during building renovation.

Applicable Regulatory Criteria:

The analytical data resulting from analysis of building materials was compared to regulatory definition of “PCB bulk product waste” in 40 CFR 761.3 as waste derived from manufactured products containing PCBs in a non-liquid state, at any concentration at the time of designation for disposal is greater than or equal to 50 parts per million (ppm).

Additionally, a determination was made to ensure that materials analyzed to contain less than 50 ppm PCBs meet the definition in 40 CFR 761.3 of “Excluded PCB products.” The regulatory limits and conditions defining the regulatory status of PCB source materials are included below:

- Building Materials
 - PCB bulk product waste: Greater than or equal to 50 ppm PCBs
 - Excluded PCB products: Less than 50 ppm. The products or source of the products containing less than 50 ppm PCBs were legally manufactured, processed, distributed in commerce, or used before October 1, 1984.

2.4 Summary of Conducted Sampling

The goal of the sampling activities listed below was to characterize suspected PCB-containing building materials associated with the on-site building, in order to develop this addendum to the remediation plan for the site with proper site characterization to support remediation goals. The testing was performed in accordance with the response letter to EPA prepared by TRC dated February 1, 2011.

- EnviroScience conducted confirmatory sampling of potential “Excluded PCB Products” (those with a single grab sample resulting in <50 ppm (mg/Kg). Four such materials were identified at building #2. TRC recommended in letter of Response to EPA dated February 1, 2011 that a minimum of one additional sample was to be collected for each material. EnviroScience collected five bulk samples consisting of one additional sample from each of four materials (two samples collected from black flashing tar TRC FL7) listed in Table 2-1.
- EnviroScience conducted sampling to demonstrate that potential Excluded PCB products are not a result of PCB contamination from an original PCB Bulk Product Material \geq 50 ppm, adjacent substrate materials were sampled from results where PCB content “approached” 50 ppm. We shall utilize the results of noted confirmatory analysis of potential Excluded PCB Products to make this determination. TRC recommended in letter of Response to EPA dated February 1, 2011 that a minimum of one substrate sample was to be collected for each material listed in Table 2-1. EnviroScience collected five bulk samples of adjacent substrates.
- EnviroScience conducted sampling of porous materials adjacent to PCB Bulk Product Waste (\geq 50 ppm). In total, seven building material types contained PCB >50 ppm,

according to TRC. Of these seven materials only three are to be impacted by the proposed work. TRC recommended in letter of Response to EPA dated February 1, 2011 that a minimum of one substrate sample was to be collected for each material. In our experience, EPA has suggested that substrate testing should be conducted at specific location of sampled PCB Bulk Product Waste materials. The specific sampling locations were not well defined in any of the provided diagrams. We collected in addition to adjacent substrate, a sample of PCB Bulk Product Waste at location of substrate sampled. This sample was used to confirm the sampling location is consistent with original findings of single grab samples by TRC. Initially three samples were collected, one from each caulking type as well as one substrate sample. EnviroScience collected six bulk samples consisting of one additional sample of caulking and one substrate from each of three materials listed in Table 2-1 identified initially by TRC to contain PCB >50 ppm.

- Based on the results of analysis indicating inconsistent findings with TRC data, EnviroScience collected an additional 30 samples of caulking materials. EnviroScience identified two caulking types containing PCBs >50 ppm. Upon determination of the two caulking types in limited locations contained PCB>50 ppm, adjacent porous substrates were collected at two locations.
- EnviroScience conducted testing to confirm remediation goal of ≤ 1 ppm for high occupancy areas and ≤ 25 ppm for low occupancy areas will be achieved at a distance of six inches from either side of caulking joint. TRC recommended in letter of Response to EPA dated February 1, 2011 that a minimum of one substrate sample is to be collected at a distance of 3, 6 and 12 inches away from each caulk type. The substrate sampling was to confirm extent of required removal or encapsulation. It is anticipated based on current renovation scope that only minimal locations will have substrate removal. Based on the identified scope of work EnviroScience collected at the same time confirmatory caulking (bulk product) was sampled. This resulted in nine samples from the three identified caulking types (3 samples at each caulk type at distances noted). Based on results of confirmatory caulking analysis (bulk products), the data for these substrates could not be used to document conditions as the caulking materials were not confirmed to contain PCBs at or near concentrations originally reported by TRC. Upon conducting further supplemental testing of caulking and identifying a locations which exceeded 50 ppm, adjacent substrate testing at the distances of 3, 6 and 12 inches was performed. Based on results testing was required at two locations where caulking was determined to be >50 ppm.

2.5 Sampling Methods

BULK PRODUCT SAMPLING

Sampling was performed by EnviroScience in 2012 and included collection of a multiple samples of bulk products to confirm the TRC analysis results and document caulking materials containing PCBs as part of substrate testing. In addition several materials containing <50 ppm were to be confirmed as “excluded PCB Products” in accordance with the definition in 40 CFR 761.3. It should be noted that only materials that would be impacted by the proposed project only were tested. Several of the materials tested by TRC will not be impacted by the project work and are not included in this plan addendum. The protocol for sampling included the following:

Samples were sent to Con-Test Analytical Laboratory (Con-test) located in East Longmeadow, MA for analysis. The analytical method included extraction method 3540C and analysis method SW846 8082.

The sample numbers, locations, material description are included in Table 2.1. Refer to Figure 2--1 for drawing identifying locations of collected samples.

ADJACENT SURFACE SAMPLING

Based on the results of prior testing by TRC and itemized response letter to EPA prepared by TRC dated February 1, 2011, EnviroScience performed testing of adjacent porous surfaces. EnviroScience conducted sampling of masonry in accordance with EPA "Standard Operating Procedures for Sampling Porous Surfaces for Polychlorinated Biphenyls" Dated May 5, 2011.

The intent of sampling was to collect samples of porous substrates at varying depths into substrate and at various distances away from PCB Bulk Product Materials to determine extent of PCB contamination from locations of materials determined to contain regulated concentrations of PCBs. Samples were collected at 0- 1/2 inch depth only.

EnviroScience utilized a concrete coring drill to collect a 1 inch diameter core into adjacent porous substrates. Preparations prior to collecting samples included removal of caulking materials from joint prior to core drilling using a solvent stripper and wire brush. The coring work was performed using wet methods applying water at the drilling location and methods of containment to collect generated materials and debris. Each of the locations was drilled to maximum depth of 1/2 inch. Core samples were also collected at distances of 3, 6 and 12 inches on the face of materials away from caulk joint as recommended by TRC. These samples were collected in similar manner and were collected to a maximum depth of 1/2 inch.

Samples were sent to Con-Test Analytical Laboratory (Con-test) located in East Longmeadow, MA for analysis. The analytical method included extraction method 3540C and analysis method SW846 8082.

The sample numbers, locations, material description are included in Table 2.1. Refer to Figure 2--1 for drawing identifying locations of collected samples.

2.6 Sample Analysis Results

The following tables summarize the specific sampling locations of collected samples and results of PCB analysis. The laboratory results and chain of custody for each set of samples are included in Appendices.

2.6.1 Source Material Sample Analysis Results for Potential Excluded PCB Products

The analysis results of potential “Exclude PCB Products as source materials are summarized in Table 2-2 below.

Table 2-2
Summary of Potential Excluded PCB Product Source
Materials Containing <50ppm PCBs

SAMPLED LOCATION	MATERIAL TYPE (TRC SAMPLE NO.)	ENVIROSCIENCE SAMPLE NO.	PCB CONTENT (mg/kg)
BULK PRODUCT (SOURCE) MATERIALS – January 19, 2012			
Front Elevation – Bird Deterrent	Black Flashing Tar (TRC FC7)	119DD-PCB-01	27 Aroclor-1254
Roof – B Side Roof Access	Black Flashing Tar (TRC FC7)	119DD-PCB-02	0.55 Aroclor-1254
C Side Courtyard near Addition	Grey Building Caulking on Vertical Joint (TRC BC4)	119DD-PCB-06	None Detected
Roof – B Side Roof Access at Metal Flashing	White Caulking on Metal Roof-Flashing (TRC BC10)	119DD-PCB-08	0.99 Aroclor-1254
Front Stair Entry Concrete Baluster	Grey Caulking around Concrete Stair Baluster (TRC BC12)	119DD-PCB-10	2.2 Aroclor-1254

Results of sampling indicate none of the five potentially excluded PCB Products, previously tested by TRC, contain PCB ≥ 50 and are therefore excluded. Adjacent substrate testing was also performed and results are identified in Section 2.6.2.

Laboratory analysis results and chain of custody are included in *Appendix D* for PCB bulk product (source) materials and substrate materials collected on January 19, 2012.

2.6.2 Potential Excluded PCB Products Adjacent Substrate Sample Analysis

The analysis results of potential “Exclude PCB Products adjacent substrate materials are summarized in Table 2-3 below.

Table 2-3
Summary of Potential Excluded PCB Product
Adjacent Substrate Material Sample Analysis

SAMPLED LOCATION	MATERIAL TYPE (TRC SAMPLE NO.)	ENVIROSCIENCE SAMPLE NO.	PCB CONTENT (mg/kg)
SUBSTRATE MATERIALS – January 19, 2012			
Roof – B Side Roof Access	Brick Substrate Associated with Black Flashing Tar (TRC FL7)	119DD-PCB-03B	None Detected
Roof – B Side Roof Access	Limestone Substrate Associated with Black Flashing Tar (TRC FL7)	119DD-PCB-03L	None Detected
C Side Courtyard near Addition	Brick Substrate Associated with Grey Building Caulking on Vertical Joint (TRC BC4)	119DD-PCB-07	1.7 Aroclor-1254
Roof – B Side Roof Access at Metal Flashing	Brick Substrate Associated with White Caulking on Metal Roof-Flashing (TRC BC10)	119DD-PCB-09	0.97 Aroclor-1254
Front Stair Entry Concrete Baluster	Concrete Substrate Associated with Grey Caulking around Concrete Stair Baluster (TRC BC12)	119DD-PCB-11	0.22 Aroclor-1254

Results of sampling indicate adjacent porous surfaces are not elevated above PCB bulk products at five sampled locations. Therefore the five bulk products sampled are considered as meeting the definition of an “Exclude PCB Product” including the following:

1. Black Flashing Tar (TRC FL7)
2. Grey Building Caulking on Vertical Joint (TRC BC4)
3. White Caulking on Metal Roof-Flashing (TRC BC10)
4. Grey Caulking around Concrete Stair Baluster (TRC BC12) – Note three additional samples of this caulking were collected and all were none detected and are included in Table 2-4.

Refer to Owner’s PCB Caulking Management plan included at end of this plan for all other materials sampled by TRC not addressed in this plan.

Laboratory analysis results and chain of custody are included in *Appendix D* for PCB bulk product (source) materials and substrate materials collected on January 19, 2012.

2.6.3 PCB Bulk Product Material Sample Analysis Results

The analysis results of source materials are summarized in Table 1 below. Note that materials containing PCB ≥ 50 ppm are listed in bold.

Table 2-4
Summary of Potential PCB Bulk Product Source
Materials Analysis

SAMPLED LOCATION	MATERIAL TYPE (TRC SAMPLE NO.)	ENVIROSCIENCE SAMPLE NO.	PCB CONTENT (mg/kg)
BULK PRODUCT (SOURCE) MATERIALS – January 19, 2012			
Front Stair Entry Concrete at Side Window	Light Brown Window Caulking (TRC WC1)	119DD-PCB-12	2.2 Aroclor-1254
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Light Grey Caulking (TRC BC1)	119DD-PCB-15	None Detected
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Clear Sticky Building- Caulking (TRC BC3)	119DD-PCB-18	None Detected
CONFIRMATORY BULK PRODUCT (SOURCE) MATERIALS February 14, 27 and March 6, 2012			
North Elevation Window at Front Stair Entry	Light Brown Window Caulking (TRC WC1)	214DD-PCB-L07-01A	2.8 Aroclor- 1254
North Elevation Window at Front Stair Entry	Light Brown Window Caulking (TRC WC1)	214DD-PCB-L08-01B	3.1 Aroclor- 1254
South Elevation Window at Front Stair Entry	Light Brown Window Caulking (TRC WC1)	214DD-PCB-L09-01C	3.9 Aroclor- 1254
Rear West Elevation at Keystone Vertical Joint	Light Grey Caulking (TRC BC1)	214DD-PCB-L01-02A	2.3 Aroclor- 1254
Capstones at Decorative Gable-Pitched Roof off Center Parapet	Light Grey Caulking (TRC BC1)	214DD-PCB-L20- 02B	8,300 Aroclor- 1254
Roof – D Side Roof Access at Concrete Caps (Stones) on Parapet	Light Grey Caulking (TRC BC1)	214DD-PCB-L29-02C	16 Aroclor- 1254
Rear West Elevation at Keystone Vertical Joint	Light Grey Caulking (TRC BC1)	227-JAC-L02-1	None Detected

SAMPLED LOCATION	MATERIAL TYPE (TRC SAMPLE NO.)	ENVIROSCIENCE SAMPLE NO.	PCB CONTENT (mg/kg)
Rear West Elevation at Keystone Vertical Joint	Light Grey Caulking (TRC BC1)	227-JAC-L03-2	None Detected
Rear West Elevation below Baluster at Horizontal Joint	Light Grey Caulking (TRC BC1)	227-JAC-L04-3	None Detected
Rear West Elevation at Keystone Vertical Joint	Light Grey Caulking (TRC BC1)	227-JAC-L05-4	None Detected
Rear West Elevation below Baluster at Horizontal Joint	Light Grey Caulking (TRC BC1)	227-JAC-L06-5	None Detected
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Light Grey Caulking (TRC BC1)	227-JAC-L25-12	None Detected
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Light Grey Caulking (TRC BC1)	227-JAC-L26-13	None Detected
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Light Grey Caulking (TRC BC1)	227-JAC-L27-14	None Detected
Roof – D Side Roof Access at Concrete Caps (Stones) on Parapet	Light Grey Caulking (TRC BC1)	227-JAC-L28-15	None Detected
Roof – D Side Roof Access at Concrete Caps (Stones) on Parapet	Light Grey Caulking (TRC BC1)	227-JAC-L30-16	None Detected
Roof – D Side Roof Access at Concrete Caps (Stones) on Parapet	Lighter Grey (Patch) Caulking Note: Same as Louver Caulking at Upper Roof (Not Sampled by TRC)	227-JAC-L31-17	None Detected
Capstones at Decorative Gable-Pitched Roof off Center Parapet	Light Grey Caulking (TRC BC1)	36DD-PCB-03A	9,200 Aroclor-1254
Capstones at Decorative Gable-Pitched Roof off Center Parapet	Light Grey Caulking (TRC BC1)	36DD-PCB-03B	7,400 Aroclor- 1254
Front Stair Entry at Outer Edge of Concrete (Pillar) Door-Casing	Clear Sticky Building- Caulking (TRC BC3)	214DD-PCB-L10-03A	2.4 Aroclor- 1254
Front Stair Entry at Middle Railing	Clear Sticky Building- Caulking (TRC BC3)	214DD-PCB-L11-03B	44 Aroclor- 1254

SAMPLED LOCATION	MATERIAL TYPE (TRC SAMPLE NO.)	ENVIROSCIENCE SAMPLE NO.	PCB CONTENT (mg/kg)
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Clear Sticky Building- Caulking (TRC BC3)	214DD-PCB-L22-03C	None Detected
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Clear Sticky Building- Caulking (TRC BC3)	227-JAC-L23-10	None Detected
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Clear Sticky Building- Caulking (TRC BC3)	227-JAC-L24-11	None Detected
Front Entry Stair at Top Landing	Clear/Black Caulking (Not Sampled by TRC)	214DD-PCB-L14-04A	1.9 Aroclor- 1254
Front Entry Stair at Top Landing (Adjacent to Threshold)	Clear/Black Caulking (Not Sampled by TRC)	214DD-PCB-L16- 04B	2,500 Aroclor- 1254
Front Stair Entry at Top Landing	Clear/Black Caulking (Not Sampled by TRC)	227-JAC-L15-8	21 Aroclor- 1254
Front Stair Entry at Top Railing	Grey Caulking around Concrete Stair Baluster (TRC BC12)	227-JAC-L12-6	None Detected
Front Stair Entry at Top Railing	Grey Caulking around Concrete Stair Baluster (TRC BC12)	227-JAC-L13-7	None Detected
Front Stair Entry at Bottom Railing	Grey Caulking around Concrete Stair Baluster (TRC BC12)	227-JAC-L17-9	None Detected

Results of sampling indicate limited samples were identified as containing PCB ≥ 50 ppm associated with exterior caulking / sealants. The following materials identified as PCB Bulk Product waste have been tested in specific locations that will be impacted by the proposed project. Summary and conclusions for the testing are as follows:

1. **Light Brown Window Caulking (TRC WC1)** – TRC identified this caulking type to contain PCB at concentration of 440 ppm. A single sample was collected of caulking at one of two windows that would be impacted by the project work when EnviroScience tested adjacent substrates to confirm PCB content in support of conclusions about substrate. The caulk sample contained <50 ppm with a result of 2.2 ppm. To confirm PCB content of the caulking type three additional samples were collected. Each of these samples also were determined to contain <50 ppm ranging from 2.8 to 3.9 ppm. Results are included in Table 2-4 above. Sampling of substrate was conducted and results support conclusion that the caulking is an Excluded PCB Product. Substrate testing results are included in Table 2-5.
2. **Clear Sticky Building Caulking (TRC BC3)** – TRC identified this caulking type to contain PCB at concentration of 830 ppm. It should be noted that this caulking type is present on multiple building joints that will be impacted by the proposed project. A

single sample was collected of caulking at one of locations at roof that would be impacted by the project work when EnviroScience tested adjacent substrates to confirm PCB content in support of conclusions about substrate. The caulk sample result was none detected for PCB. To confirm PCB content of this caulking type five additional samples were collected. Each of these samples also were determined to contain <50 ppm ranging from none detected to 44 ppm. Results are included in Table 2-4 above. Sampling of substrate was conducted and results support conclusion that the caulking is an Excluded PCB Product for those results <50 ppm.

3. **Clear/Black Building Caulk (Not previously identified)** -A mixed caulking type with clear and black was identified associated with the front entry door. This material was observed to be a different condition not previously identified or tested by TRC. The location will be impacted by the proposed project and was therefore sampled to determine PCB content. One result did contain PCB >50 ppm. This single location was at joint beneath door system at entry stair landing between door threshold and concrete landing. This location only will be treated as PCB Bulk Product waste. Results are included in Table 2-4 above. Sampling of substrate was conducted and results are less than clean-up standard of 1 ppm.
4. **Light Grey Building Caulking (TRC BC1)** – TRC identified this caulking type to contain PCB at concentration of 51,000 ppm. A single sample was collected of caulking at one of locations at roof that would be impacted by the project work when EnviroScience tested adjacent substrates to confirm PCB content in support of conclusions about substrate. The caulk sample result was none detected for PCB. To confirm PCB content of this caulking type fifteen additional samples were collected. Many of these samples also were determined to contain <50 ppm ranging from none detected to 16 ppm. Three results did contain PCB >50 ppm which were only found at high central roof above entry. This location only will be treated as PCB Bulk Product waste. Results are included in Table 2-4 above. Sampling of substrate was conducted and results support conclusion that the caulking is an Excluded PCB Product for those results <50 ppm. In addition substrate collected at Caulking >50 ppm was less than clean-up standard of 25 ppm for a low occupancy location at roof.

Laboratory analysis results and chain of custody are included in *Appendix D*, *Appendix E*, *Appendix F*, *Appendix G*, and *Appendix H* for PCB bulk product (source) materials and substrate materials collected on January 19, February 14, February 22, February 27, and March 6, 2012 respectively.

2.6.4 Adjacent Porous Materials Sample Analysis Results for Potential PCB Bulk Product Materials

The analysis results of adjacent porous materials are summarized in Table 2-5 below.

Table 2-5
Adjacent Porous Materials Analysis Summary for PCBs

SAMPLED LOCATION	MATERIAL TYPE (TRC SAMPLE NO.)	ENVIROSCIENCE SAMPLE NO.	PCB CONTENT (mg/kg)
SUBSTRATE MATERIALS – January 19, 2012			
Front Stair Entry Concrete at Side Window	Brick Substrate Associated with Light Brown Window Caulking (TRC WC1)	119DD-PCB-13	None Detected
Front Stair Entry Concrete at Side Window	Brick Substrate at 3" from Light Brown Window Caulking (TRC WC1)	119DD-PCB-14A	None Detected
Front Stair Entry Concrete at Side Window	Brick Substrate at 6" from Light Brown Window Caulking (TRC WC1)	119DD-PCB-14B	None Detected
Front Stair Entry Concrete at Side Window	Brick Substrate at 12" from Light Brown Window Caulking (TRC WC1)	119DD-PCB-14C	None Detected
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Limestone Substrate Associated with Light Grey Caulking (TRC BC1)	119DD-PCB-16	None Detected
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Limestone Substrate at 3" from Light Grey Caulking (TRC BC1)	119DD-PCB-17A	None Detected
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Limestone Substrate at 6" from Light Grey Caulking (TRC BC1)	119DD-PCB-17B	None Detected
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Limestone Substrate at 12" from Light Grey Caulking (TRC BC1)	119DD-PCB-17C	None Detected
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Limestone Substrate Associated with Clear Sticky Building-Caulking (TRC BC3)	119DD-PCB-19	None Detected
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Limestone Substrate 3" from Clear Sticky Building- Caulking (TRC BC3)	119DD-PCB-20A	None Detected
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Limestone Substrate 6" from Clear Sticky Building-Caulking (TRC BC3)	119DD-PCB-20B	None Detected

SAMPLED LOCATION	MATERIAL TYPE (TRC SAMPLE NO.)	ENVIROSCIENCE SAMPLE NO.	PCB CONTENT (mg/kg)
Roof – B Side Roof Access at Concrete Caps (Stones) on Parapet	Limestone Substrate 12” from Clear Sticky Building-Caulking (TRC BC3)	119DD-PCB-20C	None Detected
SUBSTRATE MATERIALS – February 22, 2012			
Front Entry Door	Concrete ½” from Bottom of Door (TRC BC3)	222JAC-PCB-01	0.46
Front Entry Door	Concrete 3” from Bottom of Door (TRC BC3)	222JAC-PCB-02	0.13
Front Entry Door	Concrete 6” from Bottom of Door (TRC BC3)	222JAC-PCB-03	0.16
Front Entry Door	Concrete 12” from Bottom of Door (TRC BC3)	222JAC-PCB-04	None Detected
Front Entry Pillar on the Side of the Front Door	Limestone ½” from Pillar on Side of Door (TRC BC3)	222JAC-PCB-05	0.30
SUBSTRATE MATERIALS – March 6, 2012			
Capstones at Decorative Gable-Pitched Roof off Center Parapet	Limestone Substrate Associated with Light Grey Caulking (TRC BC1)	36DD-PCB-01	1.3
Capstones at Decorative Gable-Pitched Roof off Center Parapet	Limestone Substrate 3” from Light Grey Caulking	36DD-PCB-02A	0.10
Capstones at Decorative Gable-Pitched Roof off Center Parapet	Limestone Substrate 6” from Light Grey Caulking (TRC BC1)	36DD-PCB-02B	ND
Capstones at Decorative Gable-Pitched Roof off Center Parapet	Limestone Substrate 12” from Light Grey Caulking (TRC BC1)	36DD-PCB-02C	ND

Laboratory analysis results and chain of custody are included in *Appendix D*, *Appendix E*, *Appendix F*, *Appendix G*, and *Appendix H* for PCB bulk product (source) materials and substrate materials collected on January 19, February 14, February 22, February 27, and March 6, 2012 respectively.

3 Remediation Plan

The renovation project for tuck-pointing and water proofing will impact limited materials containing PCBs. The testing performed has confirmed PCB in Bulk Product Waste in limited materials.

PCB ABATEMENT REQUIREMENTS

PCB Bulk Product Waste Removal

1. **Clear/Black Building Caulk (Not previously identified)** -A mixed caulking type with clear and black was identified associated with the front entry door. The location will be impacted by the proposed project at joint beneath door system at entry stair landing between door threshold and concrete landing. This location only will be removed as PCB Bulk Product waste for disposal as TSCA regulated waste >50 ppm. **Quantity of material is 6 linear feet.**
2. **Light Grey Building Caulking (TRC BC1)** – This caulking type is present and observed in many locations to be impacted by the project. The majority of samples did not contain PCB >50 ppm and substrate testing confirmed that adjacent materials have not been contaminated above clean-up standards. This caulking type also contains asbestos. The caulking is to be removed and will be containerized as asbestos waste mixed with PCB. The caulking at center roof parapet only had caulking with results ≥ 50 ppm. These locations only will be removed as PCB Bulk Product waste (mixed with asbestos) for disposal as TSCA regulated waste >50 ppm. **Quantity of material is estimated to be less than 200 linear feet.**

PCB Remediation Waste

3. **PCB Remediation Waste (Removed bulk material)** – Testing of adjacent substrates associated with both types of PCB Bulk Product Waste noted above have been confirmed to contain PCB contamination less than proposed clean-up standards of ≤ 1 ppm for high occupancy areas and ≤ 25 ppm for low occupancy areas. No specific required removal of PCB Remediation Waste is proposed due to PCB contamination. However, damaged masonry units impacted by the proposed renovation work may be removed at the discretion of the Owner and removed by the mason. If substrate materials are to be removed, they shall be partially removed by remediation contractor due to presence of PCB at as determined concentrations following post verification sampling for disposal. Results of adjacent substrate testing confirm materials contain <50 ppm for disposal, however due to the presence of PCB Bulk Product caulking removed sections of masonry shall be disposed of as PCB Waste >50 ppm. Removal shall be conducted using methods that do not create dust and use of limited engineering controls and removal methods as identified in original Remedial Action Plan prepared by TRC will be followed. Note remediation contractor shall cut and remove at closest point to where PCB concentrations are <1 ppm to avoid cutting into PCB containing masonry.
4. **PCB Remediation Waste (Caulking Joint adjacent Substrates)** – Testing of adjacent substrates associated with both types of PCB Bulk Product Waste noted above have been confirmed to contain PCB contamination less than proposed clean-up standards of ≤ 1 ppm for high occupancy areas and ≤ 25 ppm for low occupancy areas. No specific required encapsulation of PCB Remediation Waste is proposed due to PCB contamination concentrations determined. This is however subject to post verification substrate testing to be conducted following PCB Bulk Product Waste removal. If it is determined based on verification testing that clean-up standards are exceeded the remediation contractor shall apply proposed encapsulant at caulking joints to either side

of substrate covering a minimum of 3 inches on either side of joint instead of 6 inches originally proposed by TRC.

Work described in the previously RAP shall meet the objectives identified, in section 1.2 Project Objectives, in accordance with 40 CFR Part 761. The remediation work shall be performed to ensure compliance with EPA Toxic Substance Control Act (TSCA) requirements and protect both public health and the environment. Materials classified as PCB Bulk Product Waste and Bulk PCB Remediation Waste shall be properly disposed in compliance with federal and state regulatory requirements. Refer to Figures 3-1 for location requiring PCB abatement.

The proposed abatement activities to be performed by Remediation Contractor shall include the following:

1. Site preparation and controls to facilitate remediation of PCBs.
2. Health and Safety in accordance with Occupation Safety and Health Administration (OSHA) requirements.
3. Proper disposal of PCB Bulk Product and PCB Remediation waste.
4. Recordkeeping and distribution as required in accordance with 40 CFR part 761.125 (c)(5).

Remediation activities to be performed by others shall include the following:

1. Monitoring remediation activities as Owner's representative shall be performed by firm to be named.
2. Collection of verification samples in accordance with previously submitted RAP and February 1, 2011 response letter to EPA and as enumerated herein for PCB analysis shall be performed by Owner's Representative to be named.
3. Building site restoration shall be performed by Owner's general trades contractor following PCB remediation.

Prior to abatement and remediation activities, site preparation and controls shall be established. PCB Bulk Product Waste and removed PCB Remediation Waste will be removed and transported off-site for disposal at a permitted hazardous waste landfill which is an EPA, TSCA approved facility for PCB waste ≥ 50 ppm. PCB Bulk Product Waste shall be removed and properly disposed in accordance with 40 CFR Part 761.62. PCB Remediation Waste shall be removed as intact whole sections of masonry in accordance with 40 CFR Part 761.61(b).

3.1 Site Preparation and Controls

The work shall be performed in accordance with the previously submitted Remedial Action Plan dated April 2010 as modified by February 1, 2011 letter and this addendum to the work plan. Prior to initiating PCB Removal the following site controls will be implemented.

- Remediation Contractor shall prepare a Health & Safety Plan (HASP) developed specific to the site and work activities to be performed. All workers shall follow applicable federal and state regulation with regard to work activities, including but not limited to OSHA regulation including personal protection and respiratory protection requirements.

- Work zones shall be established in accordance with this plan to include abatement zone, decontamination zone and support zone.
- Appropriate PCB waste containers shall be lined covered and secured. The PCB waste containers shall be properly marked as described in 40 CFR part 761.40 and 761.45.
- The support zone shall be segregated from parking and drive ways utilizing orange safety fencing in an area established as necessary for all support vehicles and waste containers.

3.2 Work Area Protection – Decontamination Zone

- Post warning signs in accordance with 29 CFR 1910.1200 at all approaches to the work area. Signs shall be conspicuously posted to permit a person to read signs and take precautionary measures to avoid exposure to PCBs or other Toxic or Hazardous Substances. These signs should include the PCB M_I markers at each entrance to the work area.

The Remediation Contractor shall establish a remote decontamination enclosure consisting of equipment room, shower room, and clean room in series.

- Equipment room. The equipment room shall be supplied with impermeable, labeled bags and containers for the containment and disposal of contaminated protective equipment.
- Shower area. Shower facilities shall be provided which comply with 29 CFR 1910.141(d)(3). The showers shall be adjacent both to the equipment room and the clean room.
- Clean change room. The clean room shall be equipped with a locker or appropriate storage container for each worker's use. Following showering, each worker must then change into street clothing in clean change areas.
- Decontamination area exit procedures. The Remediation Contractor shall ensure that all workers follow proper decontamination procedures for exit from a Regulated Work area including but not limited to the following:
 1. Before leaving the regulated area (Abatement Zone), workers shall remove all gross contamination and debris from their protective clothing.
 2. Workers shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers.
 3. Workers shall not remove their respirators in the equipment room.
 4. Workers shall shower prior to entering the clean room.
 5. After showering, workers shall enter the clean room before changing into street clothes.

3.3 Work Area Protection – Abatement Zone

Refer to Remedial Action Plan dated April 2010 for additional specific requirements.

- Post warning signs in accordance with 29 CFR 1910.1200 at all approaches to the work area. Signs shall be conspicuously posted to permit a person to read signs and take precautionary measures to avoid exposure to PCBs or other Toxic or Hazardous Substances. These signs should include the PCB M_L markers at each entrance to the work area.
- Isolation barriers shall be installed as critical barriers at **exterior side** of all window and door systems to isolate the abatement zone from areas outside of proposed work to prevent release of PCB dust, debris or liquids. Protection shall include one layer of 6-mil polyethylene sheeting securely affixed to the exterior of finish surfaces to isolate window or door systems if located within the abatement zone and a maximum of 10 feet beyond in a horizontal direction.
- All other openings to the building interior such as unit ventilation, ducts, grilles shall be securely sealed with a one layer of 6-mil polyethylene sheeting from the building exterior if located within the abatement zone and a maximum of 10 feet beyond in a horizontal direction.
- Ground protection shall be installed consisting of two layer of 6-mil polyethylene sheeting to capture and collect any debris generated during removal of PCB Bulk Product Waste or Remediation Waste. The sheeting shall extend a minimum distance of ten feet from the perimeter of the building to isolate the abatement zone from areas outside of proposed work to prevent release of PCB dust, debris or liquids. In order to maintain access to the building covered walkways may be required consisting of fixed framing covered with plywood as a rigid barrier. Rigid barriers shall also be covered with of two layers of 6-mil polyethylene sheeting. Staging and/or lift platforms shall also be covered with of two layers of 6-mil polyethylene sheeting.
- Isolation barriers shall remain in place throughout work to prevent migration of any dust, debris or liquids resulting from PCB Bulk Product Waste removal and Bulk PCB Remediation Waste removal. All debris generated during operations shall be HEPA vacuumed continuously throughout the work shift and at the end of a work shift to avoid accumulation. Any tears or rips that occur in isolation barriers shall be repaired or removed and replaced with new.
- All equipment utilized to perform cutting, or demolition shall be equipped with appropriate dust collection systems.
- All surfaces adjacent to materials removed shall be properly decontaminated (cleaned) upon completing the removal of PCB Bulk Product Waste and Bulk PCB Remediation Wastes.

3.4 Remediation Procedures

The following removal procedures shall be utilized to conduct PCB Bulk Product Waste and Bulk PCB Remediation Waste removal. Refer to Remedial Action Plan dated April 2010 for additional specific requirements.

The following provides details into the means and methods involved in the PCB Bulk Waste Product removal and associated removal or encapsulations of affected PCB Remediation Waste substrates. The approach of encapsulation and in-place disposal of PCB Remediation Wastes is proposed as the tuck-pointing renovation project is not intended to be a large scale rehabilitation or demolition project with lots of substrate removal and replacement, but rather a project to repoint, re-caulk, and repair the parapets, etc., and in most cases re-use the existing brick and concrete substrates.

To supplement the engineering controls and means and methods for remedial action described in Section 2.2.1, 2.2.3 and Appendices of the previously submitted TRC Remedial Action Plan, the following additional methods shall be employed.

- For areas where caulk is to be removed all materials shall be removed using manual means or mechanical methods equipped with HEPA shrouds with dust collection systems. Waste shall be disposed of as PCB Bulk Product Waste >50 ppm and also contains asbestos.
- In locations as determined by the Owner, where substrates require removal and replacement or repair, once caulking is removed Owner's representative shall conduct verification sampling at joint, 3 inches, 6 inches and 12 inches away from joint to determine distance from joint that contamination of substrate above clean-up standards is present. For these locations standard of ≤ 1 ppm shall be utilized for un-restricted use. Once the distance of contamination or if any contamination exists is determined, remediation contractor shall remove substrate by cutting at closest distance from joint where no PCB contamination is observed for disposal using minimal engineering controls. Post abatement verification substrate sampling shall also be performed as described after materials are cut and removed.
- For areas where the substrates are proposed to remain in place, any PCB Remediation waste as defined in this plan at those locations is proposed to be encapsulated if substrate testing identifies locations which exceed clean-up standards. The Contractor shall remove the caulk, clean the joint, and encapsulate the substrate joint and adjoining surfaces to a width of 3 inches on either side of joint and full depth of joint as detailed in *Appendix C* of the previously submitted TRC Remedial Action Plan, and post encapsulation verification wipe sampling shall be performed as described.
- The proposed encapsulant to be utilized shall be 735AL Armorseal Rextthane I Floor Coating by Sherwin Williams, or equivalent, applied in accordance with the details in *Appendix C* of the previously submitted TRC Remedial Action Plan.

Following completion of the removal/encapsulation activities, the entire area within the work area shall be HEPA vacuumed to remove dust. The field inspector will then inspect the area to determine that it has been cleaned of all dust generated during abatement. One wipe sample will be performed on horizontal building materials or surfaces that are within the work area to further determine that all potentially contaminated dust has been removed.

These wipe samples shall be required to be $<1.0\mu\text{g}/100\text{cm}^2$ prior to the work/area being deregulated. The actual number of wipe samples performed in the field will depend upon the number of distinct work areas established by the Contractor for abatement actions but shall be a minimum of one dust wipe sample per work area (side of a building). If any of the work areas fail any of the cleanliness verification procedures, inspection or wipe samples, the Contractor shall be instructed to re-clean the area and all inspections and testing will be re-performed until the area has been cleared.

3.4.1 PCB Bulk Product Waste Materials

PCB Bulk Product Waste Materials include caulking at masonry joints. Materials shall be removed in a manner which does not breakdown the materials into fine dust or powder to the extent feasible. Equipment and tools to be utilized shall include hand tools and mechanical equipment to remove materials from substrates. Mechanical removal equipment shall as appropriate be fitted with dust collection systems. Any resulting dust, debris or liquid materials or other PCB Bulk Product waste shall be removed with additional engineering controls such as use of a HEPA vacuum to remove accumulations during removal. Once removed, materials shall be placed into appropriate temporary containers such as 6-mil polyethylene disposal bags for controlled transport to PCB waste containers at the end of each work shift. PCB Bulk Product Waste shall be stored for disposal in accordance with 40 CFR 761.65 and marked in accordance with 40 CFR Part 761.40 and 761.45.

3.4.2 Bulk PCB Remediation Waste – Adjacent Building Materials

Bulk PCB Remediation Waste Materials include concrete surfaces contaminated by caulking. The primary waste resulting from removal of adjacent surfaces will be PCB contaminated dust and debris from removal of surfaces or whole masonry units. Waste removed from equipment shall be stored in temporary 6-mil polyethylene disposal bags or lined fiberboard drums for transport to disposal containers. These containers shall be sealed in abatement zone when full during collection and then placed in disposal containers/storage trailers. The containers shall not be emptied into other containers to avoid dispersal of dust or fugitive emissions. No dry sweeping, dusting or blowing shall be allowed. Bulk masonry units will be wrapped in 6-mil polyethylene sheeting and transported to waste disposal containers.

The use of minimal quantities of water to moisten the generated dust prior to collection shall be utilized. Under no circumstances shall the PCB remediation waste show evidence of free liquid water, pooling or ponding within the waste stream. Any liquid used to wet the dust and debris to control fugitive emissions shall be collected and decontaminated in accordance with 40 CFR 761.79 (b) or disposed of as PCB Liquid Waste in accordance with 40 CFR Part 761.60 (a). All rags and other cleaning materials used to clean shall also be properly disposed as PCB Remediation Waste. All PCB Remediation Waste shall be disposed of in accordance with 40

CFR Part 761.61(b). All waste containers shall comply with 40 CFR 761.65 and shall be appropriately labeled in accordance with 40 CFR Part 761.40 and 761.45.

3.4.3 Encapsulation– Adjacent Building Materials

The proposed encapsulants to be utilized is 735AL, Armorseal Rextthane I Floor Coating by Sherwin Williams or equivalent, applied in accordance with the details in *Appendix C* of the previously submitted TRC Remedial Action Plan. Encapsulant shall be applied in accordance with manufacturer's recommendations. MSDS sheets shall be maintained and storage and disposal requirements shall be adhered to according to the MSDS. Encapsulants shall be applied to caulk joint locations following the removal of all caulking and verification testing to verify clean-up standards are exceeded. Prior to encapsulation a visual inspection shall be performed by the Owner's representative to be named. This visual inspection shall document the removal of caulking and cleaning of substrate. Encapsulant shall be applied to surface a distance of 3 inches from each side of caulk joint onto substrate and to the full depth of joints.

3.5 Cleaning and Decontamination Procedures

- The Remediation Contractor shall be responsible for complete cleaning and decontamination of the Abatement Zone upon completion of work. The Abatement Zone will be required to meet proposed Verification Sampling limits established in RAP or this addendum.
- The Remediation Contractor shall utilize HEPA vacuum and wet cleaning products to remove all visible dust and debris from all surfaces within the work area. If specialty products are utilized the Remediation Contractor shall utilize in accordance with manufacturer's specifications including any additional safety and disposal requirements for such use.
- Cleaning of work area barriers shall be performed leaving critical barriers at openings, in place until results of post verification sampling indicate acceptable limits. Cleaning shall be performed from top to bottom.
- Any liquid used to wet the dust and debris to control fugitive emissions shall be collected and decontaminated in accordance with 40 CFR Part §761.79 (b)(1) or disposed of in accordance with §761.60 (a).
- All rags and other cleaning materials used to clean shall also be properly disposed as PCB Remediation Waste. All PCB Remediation Waste shall be stored for disposal in accordance with 40 CFR Part §761.61(a)(5)(v)(A). All waste containers shall be appropriately marked in accordance with 40 CFR Part §761.40 and §761.45.
- Equipment to be utilized in connection with the removal of PCB Bulk Product Waste, and Bulk PCB Remediation waste including waste collection or that will or may come in

direct contact with the site contaminants shall be decontaminated prior to leaving the site to prevent migration of the contaminated residues from the project site. Decontamination shall be in accordance with 40 CFR Part §761.79 and Sub-part S procedures.

- All non-disposable equipment and tools employed in the course of the project will be decontaminated at the conclusion of each work day through the following sequence:
 1. Initial tap water rinse, to remove gross soil
 2. Hexane or equivalent wash
 3. Tap water rinse
 4. Second Hexane or equivalent wash
 5. Second tap water rinse
- The wash water and decontamination liquids shall be captured and containerized in DOT approved 55-gallon barrels for off-site disposal.

3.6 Verification Sampling Plan

Following the completion of the PCB Bulk Product Waste removal Owner's Representative, to be named, shall implement the following verification sampling plan.

Upon completion of work in each area, a visual inspection of all remediated surfaces for visible evidence of dust, debris and liquids shall be performed. Surfaces shall also be inspected for visible PCB source materials that may not have been removed. The visual inspection shall provide in a preliminary way, verification that remediation work has been completed in accordance with this plan addendum and original TRC plan. Visual inspection shall ensure no PCB Bulk Product Waste, visible dust, debris or liquids are present on adjacent surfaces. In addition to the remediation surfaces the surfaces of protective coverings and isolation barriers shall be inspected to ensure they are cleaned of dust and debris. No sampling shall be performed until the visual inspection is complete and all surfaces are visually free of dust, debris and in the work area.

3.6.1 Porous Concrete Masonry Surfaces

Porous concrete masonry surfaces shall be evaluated to verify that removal of PCB Bulk product Waste has resulted in surfaces with ≤ 1 ppm for unrestricted use based on high occupancy use at door system on A side and ≤ 25 ppm low-occupancy for all roof areas. Owner's Representative, to be named, shall follow the EPA "Standard Operating Procedures for Sampling Porous Surfaces for Polychlorinated Biphenyls" Dated May 5, 2011, to collect verification samples. **Sampling is proposed at less frequency than originally included in the TRC plan as meeting Sub-part O.**

Front Entry Door – A side

The areas to be sampled at front entry door threshold and sidewalk as high occupancy use will include collection of **two samples** one at threshold and one at sidewalk to verify complete removal of caulking and confirm initial samples of these substrate locations. Prior testing included herein has been performed and substrate impact above 1 ppm has not been identified.

Roof Locations at Parapet

At roof locations where identified PCB Bulk Product Waste has been confirmed, post verification sampling shall be performed. Testing shall be conducted at a frequency of 1 sample per 5 linear feet of removed caulking (including linear length of both sides of caulk joint in calculation) for the first 25 linear feet. If results are consistently below proposed clean-up standard the frequency of verification samples shall be reduced to one sample per 25 linear feet for the remaining removed caulking. Based on the anticipated linear length of 200 lf of caulking and the above frequency it is proposed that **20 samples plus two duplicate samples** will be collected from an estimated 400 linear feet of concrete joint areas. Prior testing included herein has been performed and substrate impact above 25 ppm has not been identified.

The laboratory shall be an accredited laboratory for PCB analysis. The analysis method shall include extraction using EPA Method 3540C (Soxhlet Extraction) and analysis method SW846 8082.

Results of analysis shall be compared to the clearance objective established herein. If any location exceeds this clearance objective, use of epoxy or urethane encapsulant will be utilized and upon installation wipe sample verification will be conducted.

3.6.2 Encapsulated Surfaces

The results of substrate testing have not determined impact of adjacent materials above proposed clean-up standards. However, verification sampling of substrates will be performed to confirm initial findings and if results exceed clean-up standards, encapsulation will be performed. For porous surfaces not scheduled to be removed as part of the renovation, after removal of the source PCB caulk itself, and application of the encapsulant, post encapsulation wipe samples shall be performed, and the PCB Remediation Wastes will be considered to have been appropriately sealed when all verification samples are $< 1\mu\text{g}/100\text{cm}^2$.

The sampling discussed in Section 2.2.3 on Page 10 of the RAP for sampling of the substrates to be encapsulated is not proposed based on testing of substrates presently performed which documents substrates are not impacted above clean-up standards. The results of testing performed document the current status of substrate contamination. Intent of sampling shall be as noted to verify effectiveness of encapsulant only. Proposed wipe verification sampling following encapsulation was discussed in Section 2.3 on Page 1 of the original RAP. With the purpose of said wipe verification sampling to be the evaluation of the effectiveness of the encapsulant, as noted in the comment, the proposed frequency of wipe verification samples is now proposed at one sample per 25 feet of encapsulated joint. Note both sides of joint shall be utilized in the quantification of linear footage. It is estimated based on the scope of the project that a maximum of 16 plus 1 duplicate wipe samples will be required.

The laboratory shall be an accredited laboratory for PCB analysis. The analysis method shall include extraction using EPA Method 3540C (Soxhlet Extraction) and analysis method SW846 8082.

3.7 Waste Disposal Requirements

3.7.1 Marking of Waste Containers

- All waste containers must be marked with the name of the waste contained; the date in which the first material was placed in the vessel; and the last date at which addition of waste occurred. All waste containers must be marked with a PCB M_L marker.
- All waste containers containing PCB Bulk Product Waste, Bulk PCB Remediation Waste and PCB contaminated debris, containment system components, used personnel protective equipment, personal and equipment wash water and decontamination fluids, or other wastes generated during the abatement work shall be labeled as follows:

DOT Class 9 UN3432 (solid)
Or UN2315 (liquid) PCB Waste
RQ
Waste for Disposal

Federal law prohibits improper disposal.
If found, contact the nearest police or public safety authority or
the U.S. Environmental Protection Agency.

- a. Generator's Information: _____
- b. Manifest Tracking No.: _____
- c. Accumulation Start Date: _____
- d. EPA ID No.: _____
- e. EPA Waste No.: _____
- f. Total Weight: _____
- g. Container No.: _____

HANDLE WITH CARE!

In addition, these containers must be marked with a PCB M_L marker.

- Such marking must be durable, in English and printed on or affixed to the surface of the package or on a label, tag or sign; displayed on a background of sharply contrasting color; un-obscured by labels or attachments and located away from any other marking (such as advertising) that could substantially reduce its effectiveness.

3.7.2 On-site Waste Management and Disposal of PCB Waste

- All solid waste material, containment system components, used personnel protective equipment, and other solid wastes generated during the work, shall be placed directly in appropriate waste receptacles immediately upon removal from its in-situ position. Suitable waste receptacles may consist of DOT-approved 55-gallon barrels or "Gaylord" boxes.

- The Remediation Contractor shall be responsible for all packaging, labeling, transport, disposal and record-keeping associated with PCB or PCB contaminated waste in accordance with all federal, state and local regulations.
- The Remediation Contractor shall ensure that the person transporting the waste holds a valid permit issued in accordance with appropriate federal, state, and local regulations.
- The Remediation Contractor shall provide to the transporter at the time of transfer appropriate shipping records or uniform waste manifests as required by the federal, state and local regulations with a copy to the Owner and Owner's Authorized Representative.
- Remediation Contractor shall maintain proper follow up procedures to assure that waste materials have been received by the designated waste site in a timely manner and in accordance with all federal, state and local regulations.
- The Remediation Contractor shall assure that disposal of polychlorinated biphenyls (PCB) containing waste material is at a facility approved to accept such waste and shall provide a tracking/manifest form signed by the landfill's authorized representative.
- If roll-off containers are to be utilized for containerization of the abatement wastes the following shall apply:
 1. All roll-off containers or other similar vessels utilized shall be watertight and lined with 6-mil polyethylene sheeting or equivalent impermeable lining, and equipped with a secured and impermeable cover.
 2. The impermeable cover shall remain securely in place at all times when material is not being actively placed in the vessels. The Remediation Contractor shall be responsible for ensuring that the cover remains securely intact until the container is removed from the site.
- If 55-Gallon barrels are to be utilized for waste containerization, the barrels shall consists of suitable DOT-approved 55-gallon barrels that are watertight and free of corrosion, perforations, punctures, or other damage. All barrels shall be securely covered and sealed at the conclusion of each work day.
- The waste containers shall remain staged at the site with a secure impermeable cover in place until the materials are transported from the site to be delivered to the designated disposal facility.
- A waste roll-off and barrel staging area shall be designated prior to initiation of the abatement work, and approved by the Owner's Authorized Representative. If this area is located outside of the building, the area (or areas) shall be surrounded by a chain-link fence with a minimum height of six feet. The fence shall be labeled with a PCB M_I marker.

- Properly containerized waste with PCB ≥ 50 ppm must be transported by a licensed hauler and shipped as PCB Bulk Product Waste or Bulk PCB Remediation Waste for disposal at a permitted facility for PCB waste ≥ 50 ppm. As follows:
 1. In an incinerator approved under 40 CFR Part §761.70.
 2. In a chemical waste landfill approved under 40 CFR Part §761.75.
 3. In a hazardous waste landfill permitted by EPA under section 3004 of RCRA, or by a State authorized under section 3006 of RCRA.

Provide required copies of the uniform waste manifests for hazardous wastes to the Owner, waste generation State and waste destination State as required.

- Materials containing < 50 ppm will be transported to one of the following facilities:
 1. A facility permitted, licensed, or registered by a State to manage municipal solid waste subject to part 40 CFR Part §761.258.
 2. A facility permitted, licensed, or registered by a State to manage non-municipal non-hazardous waste subject to 40 CFR Part §761. 257.5 through 257.30, as applicable.
 3. A hazardous waste landfill permitted by EPA under section 3004 of RCRA, or by a State authorized under section 3006 of RCRA.


Waste manifests must show chain of custody. Provide required copies of the waste shipment records for wastes to the Owner as required.

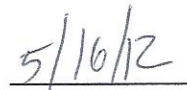
- Any PCB Liquid Water Waste shall be properly containerized and decontaminated in accordance with 40 CFR Part §761.79 (b)(1) or disposed of in accordance with 40 CFR Part §761.60 (a).
- Any chemicals, solvents or other products used during decontamination shall be properly containerized as PCB Liquid Waste. Waste must be properly decontaminated or disposed in accordance with 40 CFR Part §761.60 (a) or 40 CFR Part §761.79 (g). PCB Liquid Waste shall be transported by a licensed hauler and shipped for treatment or disposal. Provide required copies of the uniform waste manifests for hazardous wastes to the Owner, waste generation State and waste destination State as required.
- All contaminated waste shall be carefully loaded on trucks or other appropriate vehicles for transport. Before and during transport, care shall be exercised to insure that no unauthorized persons have access to the material.
- Transporters of the waste are prohibited from “back hauling” any freight after the disposition of the Owner’s waste stream until decontamination of the vehicle and/or trailer is assured.

4 Schedule and Plan Certification

It is the intent of the Owner to begin the removal of PCB Bulk Product Materials and Bulk PCB Remediation Waste beginning **immediately upon approval by EPA** in accordance with this plan and any conditions of approval. It is anticipated that the work shall be performed as expeditiously as possible including removal of PCB Bulk Product Waste followed by the removal or encapsulation of Bulk PCB Remediation Waste from adjacent surfaces. Upon completing the PCB Bulk Product Waste removal and verification sampling confirming the Project Objectives are met, the masonry restoration will be conducted. A schedule as prepared by the General Trades contractor is included in this submission as *Appendix I* as well as masonry restoration plan.

The Owner hereby certifies that all the sampling plans, sample collection procedures, sample preparation procedures, extraction procedures and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site, are on file at the Site and available for EPA inspection. Additionally, the Owner has provided a PCB Management Plan included in *Appendix J* for PCB materials not included in the limited scope presented herein.



Owner's Representative

Date

Owner: Department of Veterans Affairs
Mr. Joshua Farber (Acting Chief) Engineering Services (138)
200 Springs Road
Bedford, MA 01730
Phone: (781) 687-2406



Fuss & O'Neill EnviroScience, LLC Representative
Robert L. May Jr.
Vice President

May 16, 2012

Date

Remediation Contractor Representative

Date

Figures

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F

Appendix G

Appendix H

Appendix I

Appendix J
